



THE PARTHENON, AND THE EARTHQUAKE OF 1894.

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I HAVE undertaken to describe the result of an examination of the Parthenon which I made about a year ago, its aim being to advise the Greek Minister of Public Instruction, and the Archaeological Society of Athens, as to certain repairs which were in contemplation in consequence of their attention having been particularly drawn to the matter by the effect produced upon the building by an earthquake which took place in the summer of 1894. Three international consulting architects—*i.e.* a French, a German, and a British member—were appointed to confer with a local committee, and I was chosen as one of the three. I think I cannot do better than very briefly mention the principal events which, in addition to the mere lapse of time, have brought the building to its present ruined and insecure condition.

The Parthenon, from the time of its completion, 438 B.C., until about the middle of the sixth century of our era, when, by an edict of the Emperor Justinian, it was converted into a church dedicated to *Ἁγία Σοφία* (the Heavenly Wisdom), served the purpose intended by its builder Pericles, viz. that it should be the great temple of the tutelary goddess of Attica. We must not, however, call Pericles the founder, for a temple of Minerva must have already existed on the same site for about a thousand years, when Pericles replaced by the existing structure its hexastyle predecessor, which had been ruined by the Persians.

When the temple was converted into the church, as above mentioned, no remarkable change needed to have been made as to the external appearance; but an apse was built at the east end which would seem to have required the removal of two columns of the Pronaos; but the Naos of the Pericleian temple must have been greatly altered at that time. The massive colonnades supporting the roof, similar to those of which we have existing evidence both at Pæstum and Ægina—at Pæstum standing, at Ægina lying on the ground—and of which

the traces of the diameters of the lower order are still visible in the Parthenon (at least they were so a few years ago), and which measured about 3 feet 7 inches in diameter, were, at the time I speak of, replaced by others about 2 feet in diameter, which were standing when Messrs. Spon and Wheler visited Athens in 1675. The architraves carried by these more recent columns were formed out of the marble beams used in the earlier colonnades, which required to be shortened about 5 inches to suit the reduced columniation. Of this there are positive evidences on the pavement. Several of these beams exist, and exhibit the operation then performed upon them. It is possible that the Naos may have been injured by a fire, and that the original columns were too much calcined to be left standing; and also that the original beams could only be re-used by shortening their length, and by the reduction of the columniation as above mentioned. This adaptation was done with a certain amount of architectural feeling, and a Doric frieze, with triglyphs, and guttæ band below them, and a cornice to suit, making a regular entablature, was then formed to surmount these smaller columns. All the work of this entablature is very feeble, and exactly conformable to the date at which the temple was converted into the church. Both on the scanty remnants of the Pronaos, and the more extensive remains of the Posticum, of which we shall have occasion to speak more particularly later, there are evidences both of fire and repair. These repairs may have been done at this semi-Classical period. The state of the interior when Spon and Wheler saw it is thus described:—"There is a gallery with twenty-two small columns in the lower tier, and twenty-three in the upper." This exactly conforms to the evidence on the spot if we suppose that the central column of the lower tier at the west end had been omitted to make way for the door by which the church was then entered. Originally there had been no communication between the Naos and the Opisthodomus, although two small doorways had been pierced at some later period. Thus Messrs. Spon and Wheler must have seen the Parthenon unchanged in its external aspect, and internally in general conformity with its original structure, not much more than two hundred years ago. The year previous to Spon and Wheler's visit, whose written description, as published by Wheler, is most interesting, the Parthenon had been visited by the Marquis de Nointel, French Ambassador to Constantinople, who took with him an artist named Jacques Carrey, whose drawings, though very rough, are of very great value in all matters connected with the lost antiquities of Athens, and especially in the grouping of the sculptures of the Parthenon. These drawings are preserved in the National Library at Paris; but there are copies in the British Museum.

One of the vicissitudes which befell the Parthenon, but probably did not much affect the construction, was that from the year 1204 Greece was occupied by the Franks, who took possession of Constantinople during the Crusades; and although the Greek princes afterwards recovered Constantinople, the southern parts of Greece, including Attica, remained in the hands of the Franks until they were expelled in 1456 by the Turks. Thus, during about two centuries and a half, the Parthenon was ecclesiastically under the authority of the Pope instead of the Patriarch of Constantinople. The building itself was probably very much neglected, for it is recorded that in 1403 the roof of the Opisthodomus fell in. After the Turkish conquest a Mosque was built within the temple, but apparently without any great alteration of the church which had preceded it. Twelve years after the visit of Spon and Wheler the greatest calamity that ever happened to the Parthenon took place.

The account of what occurred is thus described by Col. Leake, chiefly drawn from Fanelli's contemporary history. In 1687 the Venetians under Francesco Morosini, afterwards Doge, made important conquests in the Morea, and determined to employ the autumn of that year in the reduction of Athens, then held by the Turks, who had retired into the citadel, that is, the Acropolis. On 27th September the besiegers began to make approaches towards the

enemy's outworks, but proceeded with difficulty in consequence of the rocky nature of the ground. The fire meanwhile was continued from the mortars upon the citadel, the Parthenon being the most conspicuous object, and, as the latter occupied a large portion of the platform, it could not long escape injury; but this might have been comparatively unimportant had not the Turks unfortunately placed in the temple, together with their most valuable property, a large quantity of their ammunition for the defence of the citadel. Towards evening on the 28th a shell falling upon the centre of the building inflamed the gunpowder in the Eastern Chamber (that is, the Naos). The explosion overturned all that part of the cella, and threw down the adjoining lateral columns of the Peristyle, with all excepting one column of the Pronaos; but left a part of the Opisthodomus standing, as well as the two fronts, without even displacing more than two or three statues of the Pediments. The conflagration caused by the explosion extended to the houses of the citadel.

After this destruction Morosini took possession of the Acropolis; but only for a brief period, as he found it necessary the next spring to evacuate Attica, so that this terrible injury to the Parthenon was quite gratuitous. The disaster it suffered at the hands of Morosini, however, was not quite complete. He began the removal of some of the statues from the west front, thinking that the car of victory (as he supposed it to be), with its horses of natural size and admirable workmanship, would be a fine accompaniment to his triumphal entry into Venice, and a noble monument of his conquest of Athens; or, according to the more candid expression of the historian Fanelli, "of his voluntary abandonment of the Attic conquest." By the awkwardness, however, of the Venetian engineers, the whole group was thrown down in the act of lowering it, and, according to the testimony of an eye-witness, broken to atoms.

On Morosini's departure the Turks returned to the citadel and restored their Mosque as it appeared when Stuart saw it in 1762.

Lord Elgin's removal of the sculptures, at the beginning of this century, was happily unattended with the mishap which befell Morosini's attempt, and the priceless sculptures he obtained are safe in the British Museum. From time to time the question arises whether he was justified in removing them. The justification which ought, I think, to have most weight is this—namely, that in the war of independence in 1826–1827 the Acropolis was twice bombarded, once by the Greek forces and once by the Turks, and the scars produced by the shells and cannon-shot on those occasions over all the building (except on the north side), and more particularly on the west front, are very grievous, showing the danger the sculptures escaped through Lord Elgin's action. Even now we may feel disposed to think that they are safer where they are than if they still remained on the temple. In one particular, Lord Elgin's agents did a distinct and, I think, an unwarrantable injury to the building—though probably in excess of his Lordship's instructions. On the south side of the temple the explosion had left eleven of the original seventeen columns standing, with their entablatures complete. From the greater part of these entablatures the agents referred to threw down to the ground the cornices, that they might, with the greater ease, withdraw the metopes, thus not only disfiguring the temple, but leaving the rest of the entablatures much more liable to injury from wet, especially as the iron cramps and dowels, which are everywhere largely used in the construction, became exposed and liable to rust and to shatter the marble.

This action of the iron is going on more or less throughout the temple, not so rapidly as would be the case in our climate, but it has done mischief in various places; some I shall have occasion to point out further on. One of these injuries, a very obvious and old-standing one, is common to most buildings of the Classical period, and particularly so at Athens—namely, the havoc that has been made in the Dark Ages by persons hacking away the stonework in search for the metals, iron and lead, which were embedded. The better

protection of the ironwork is one of the points which is very much called for in anything that is done for the preservation of the temple.

Another cause that has to be mentioned has been in operation from time to time for more than 2,300 years. I refer to earthquakes. Athens fortunately lies at a distance from the special lines of seismic action; but both the Parthenon and other buildings on the Acropolis show clearly, and particularly by the twisted drums of some of the columns, that the earthquake of 1894 was not an exceptional one. Indeed, this last earthquake, as it did no very great damage to the fabric, has had the fortunate effect of directing attention to a number of serious weaknesses, which, if neglected, may lead to a great catastrophe; and it is very much to be hoped that the present political disturbances may not be allowed to hinder the execution of the precautions which had already been commenced and are urgently demanded. Almost the whole of the damage which is traceable to the earthquake of 1894 consisted in the fall of a piece out of one of the drums of a column on the north side, and that of a rather large portion of one of the architraves of the Posticum. Both pieces were probably already split and liable to be easily shaken down.

Another cause of mischief is the action of the roots of plants of various kinds which had been allowed to grow on the top of the temple, for the growth of which, soil is amply provided by the ravens frequenting the structure, and these roots, wherever they could enter into an open joint, must have tended to displace the masonry. Originally the joints were made so close that there could have been little danger from this source, but from the shaking by earthquakes and the explosion opportunities must occasionally have been given for the roots to enter. This cause of mischief has been pointed out to the Committee, and, whilst I was there, was being attended to; it is to be hoped that the matter will now be continually kept in view. Besides the physical injuries and mishaps which I have enumerated, about the year 1841 the Parthenon was in danger of what might be called a moral disaster at the hands of King Otho and his architect Von Klenze, who designed a large palace for the King to be built on the Acropolis. Happily he never even began it; but the bad effect, if it had been built, can be sufficiently well imagined. At that period, however, several of the fallen columns of the temple were re-erected—a most unfortunate proceeding, for the joints of the re-erected drums, with their jagged and bruised edges, form no sort of suitable accompaniment to the perfect lines of the original work, in which the joints are only made visible by occasional slight differences of colour in the adjoining stones.

In the year 1872 it appeared necessary to take down the central portion of the lintel over the western doorway, a stone which when perfect was nearly 30 feet long, and to support the superstructure by a constructed beam formed by a brick arch tied with iron bars at the bottom. The original lintel was doubtless in a very unsafe condition, having at some time suffered from the conflagrations I have referred to; but the way in which the repair had been effected was very unsightly, and as a considerable expenditure was being projected in the restoration of other parts, an opportunity seemed to offer itself for a better treatment of this western doorway, particularly as a great part of the expense would be necessarily provided by the contiguity of the general scaffolding required for the Posticum.

When I arrived at Athens in the spring of last year I found that both my colleagues—namely, Professor Dürm, of Carlsruhe, and M. Lucien Magne, of Paris—had already been there, and had given their reports to the Greek authorities. The former also published in Berlin in German an abstract of his report, a copy of which is in the Institute Library. He goes very fully—indeed, much more fully in some respects than the local committee were prepared to follow him—into the question of the defects and remedies; but the report is nevertheless a valuable contribution to the study of the subject. That of M. Magne is a

brilliant and well-illustrated memoir on the construction and ornaments of the temple rather than a more technical report on the defects and remedies; but he calls attention to one very important detail, which seems to have escaped the notice of Herr Dürm, namely, the instability of the angles of the pediments, on which subject I shall have more to say later.

I was received very cordially by the local committee, presided over by M. Cavvadias, the Government Superintendent of Antiquities, and consisting of several Greek members of the Athens Archaeological Society and some associated members, including Dr. Dörpfeld, the eminent German archaeologist and architect, M. Troump, a resident French architect, and the Government engineer, M. Balános, who was to superintend the repairs. They had already made arrangements for several 14-foot architrave stones (that is, of the full size of the old imperfect ones) being prepared on Mount Pentelicus, and I joined them in an agreeable excursion to the quarries to inspect the fitness of these blocks in the rough.

The part of the temple which demanded the most immediate attention was the hexastyle portico of the Posticum [see plan, p. 354], and a scaffolding had been erected there, which enabled me to study conveniently the state of the superstructure in that part. Ladders were also erected for me in a few other places which could not be properly examined from below; especially for the purpose of dropping a plumb-line from the top to the bottom of some of the columns, which I had so treated just fifty years earlier, to see if any change had taken place. It was necessary to do this rather early in the mornings before the otherwise inevitable wind had

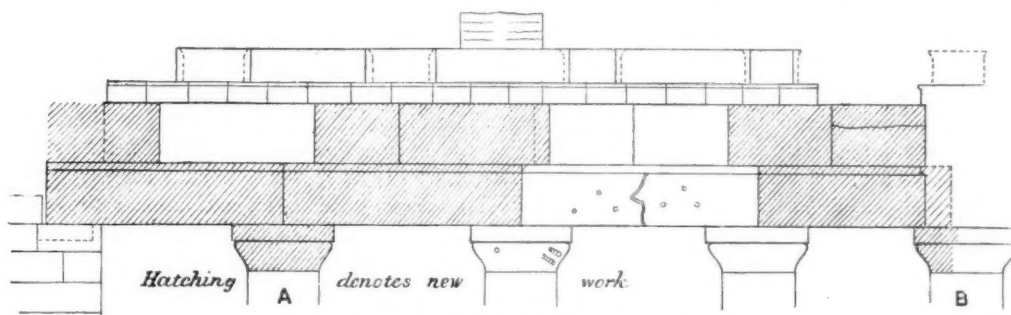


FIG. 1.—POSTICUM COLUMNS, &c. SEEN FROM THE EAST.

arisen. I had by this means the satisfaction of being able to prove that no change in their relation to the perpendicular had taken place, nor, so far as I could reach them, had the old cracks enlarged. After studying the building in this manner for about three weeks I prepared my report, and before I left Athens I had the satisfaction of believing that the local committee had agreed to the whole of it, and that they all seemed to concur in the wish that, whilst what was essential should be done, everything should be executed in the most conservative manner, so that whatever new material had to be inserted, it should be kept out of sight as much as possible.

The state of the Posticum is such that it is impossible to execute any satisfactory repair without replacing at least five of the architrave stones. Of the six columns composing the portico, four only are free; two of them are more or less embedded in the mass of masonry containing a staircase which was once surmounted by a Turkish minaret. The staircase may, however, have been previously built for the Christian church. This mass at any rate secures

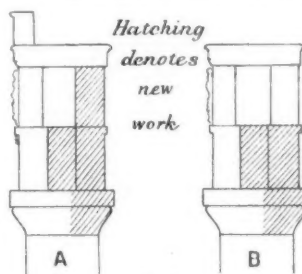


FIG. 2.

the southern columniation. The architraves supported by the four free columns consist of twelve stones. Of these twelve, only five are free from very great defects; but if five of them can be replaced with new material, two can be so pinned together to their neighbours that they may be supported sufficiently well. The worst defects are on the eastern side of the portico. With one exception the western stones are sound, which is fortunate, as they support the portion of the Panathenaic frieze which is still left on the temple. With regard to the defective one—namely, that which once connected the north-eastern column with its neighbour, but does not now perform that office, for it is completely severed into two portions by a bad crack—the simplest remedy would have been to replace it with new; but its removal would endanger a portion of the precious sculptures, and it will have to be keyed to a new stone placed alongside of it. Professor Dürm in his report suggests that the reason of this part of the Parthenon being in so much worse a condition than any other, is, that the original builders had used for an interior part of the fabric a very much worse material than they had provided for the exterior. It is true that the marble of these architraves is more streaky than could be found on the exterior; but the reason must be sought elsewhere, for streaky marble of very similar quality has endured extremely well on the temple of Jupiter Olympius, and another and more effective cause can be assigned to it, namely, one to which I have already referred—that is, fire, which once certainly, at the time of the explosion, as above stated, and I think also at an earlier period, had consumed all the inflammable part of the structure, and had very much calcined the whole of the superstructure of the Posticum, as the state of the surface of the marble gives clear evidence. It had also weakened the lintel of the great western door, to which I have already referred, and some of the columns of the Posticum, especially on their eastern sides, have also suffered. Many portions of the capitals and of the architrave stones in this part retain traces of iron plugs, which can only have been used to fix some material for the purpose of repairing the surfaces which had been split off by the action of fire. It is, however, unimportant to discuss the period at which such fire may have occurred, as we are now concerned only with its effects. It would, and does, completely explain the reason why the architrave stones of this portion of the building, although much less subject to ordinary weather vicissitudes, have become so much more cracked than those of the Peristyle. A large piece from the middle intercolumniation fell down in the earthquake of 1894, split off apparently at an ancient flaw. The course of deep stones above the architrave, which forms the back of the Panathenaic frieze, and ranges with it in level, is also very much cracked and dislocated, so much so that only two pieces in the whole length—that is, very little more than a quarter of the whole—are in a fit condition to be retained. These pieces, however, are neither so difficult to handle nor to replace as the main architrave stones, which have a length about 13 feet 9 inches each. The quarries on Pentelicus, although they are not yet exhausted, do not seem to yield to modern demand such blocks as the ancients were able to find there; and it must be added that the present method of working with the help of gunpowder is not favourable to the extraction of sound blocks of considerable length. It is probable, too, that Ictinus' contractors had better roads for bringing them down to Athens than the wretched tracks which must now be traversed.

When I was at Athens a strong scaffolding had been designed, which was to be surmounted by a "traveller," for the purpose of taking out the condemned blocks and fixing those which were to replace them; but the operation of removing the old blocks was likely to be a delicate one, because of the state of the course above them, namely, the platband, which supported the marble beams that formerly carried the ceiling. This course consisted of through stones, and formed also on the other side of the wall the moulded band under the ceiling-beams over the Peristyle ambulatory. The condition of this course was such that,

although it might very well remain in its present order, it would not admit of being taken off and replaced without great loss; whereas, in consequence of the connection of all the courses together by iron dowels, the lower courses could not be lifted or drawn out sideways if this platband remained exactly as it was. The construction shown on the sections offered the solution of this difficulty. The hollow between the inner and outer frieze, which is sufficient for a workman to pass from end to end, was to be utilised by placing a screw jack over each column, and by means of a light iron or steel beam extending from jack to jack, lifting up the whole length of the platband until the dowels were cleared; and this would also give space for drawing out the defective architraves, and inserting those which were to go in their place, and would afterwards by reverse action allow the platband to descend to its proper level. I understood that this was the device of M. Baláños, the Government engineer. Several of the capitals of the Posticum are so much shattered that they must be partly renewed—two of them to the extent of at least one-half—to enable them to support the new architrave stones.

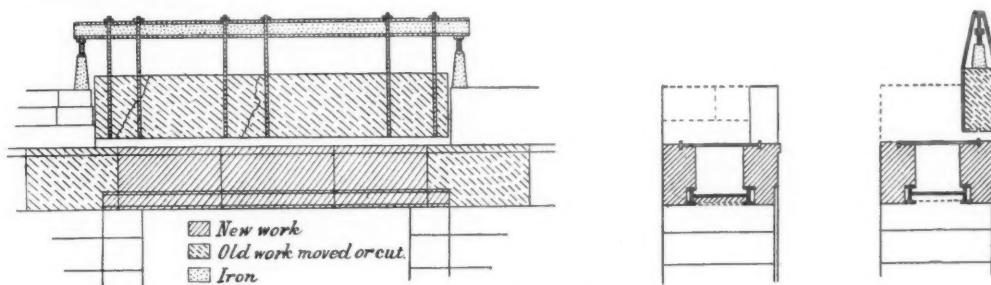


FIG. 3.—WESTERN DOORWAY.

The lintel of the great western door has been already referred to. At present the two ends of this originally magnificent stone remain in the wall, and give evidence of the insertion of the lines of the finished doorcase. All the rest is gone, and, as already stated, the place is occupied by an exceedingly unsightly brick arch. This, it is hoped, will be replaced by marble; but there is not the slightest prospect of a 30-foot beam being found, nor could it be brought to Athens with existing appliances. The plan recommended by me, and accepted by the Athenian Committee, and I presume by my German and French colleagues, to whom it was communicated, is shown in a drawing on the wall. The lower flanges of the real working supports were not to be hidden, but the general appearance would be marble of the same form as the original beam. The upper stone, of great length also, can still remain; but it must be treated very tenderly, because it is much cracked and weakened from the same cause that has produced such a disastrous effect upon the rest of the Posticum. The operation proposed is sufficiently explained on the diagram.

I have already referred to the insecure condition of the angles of the temple. This applies to the north-eastern and the two western angles, but not so much so to the south-eastern, for there the misadventure has already taken place, and the upper members have fallen to the ground.

The cause of the mischief must be traced to the great overhanging stones which supported the angular acroteria having a tendency to slip downwards and drag the neighbouring portions of the superstructure with them. No doubt with so flat a pitch it may be argued that the beds of the stones in question, sloping not more than $13\frac{1}{2}$ degrees, do not exceed the angle of repose; but the theory of the angle of repose does not reckon for earthquakes and

explosions. The chief hindrance to the stones in question slipping down during such vibration is due to the iron dowels which connected them with the masonry beneath. There is also a certain, but very inadequate, amount of joggling. The result in every case has been a considerable amount of outward pressure—in one case, as I have mentioned, sufficient pressure to have precipitated the upper members, and in the three others to produce serious cracks in the architrave, and in one case, *i.e.* the north-east angle, in the great corner-stone of the cornice also. The western front at both its angles has suffered in the architrave from this tendency, but the great corner-stones remain unimpaired. The worst crack in the architrave is over the north-west angle column, where owing to the fall of a large piece at the corner of the abacus the bearing of the outer stone of the architrave is reduced to little more than a point. The thickness of the architrave is here, as elsewhere, compounded of three pieces set up edgewise, each being nearly 2 feet thick and 4 feet 5 inches high.

Between the fourth and fifth columns of the west front, reckoning from the south, a crack through the architrave has been produced by a cannon-shot, and the abacus of the fourth column has been so much shattered that it does not give a bearing to more than about half the thickness of the architraves which rest upon it. The exfoliation of iron cramps connecting the architrave stones at the top has also injured all but one of the vertical joints, but beyond the breakages of the large splinters which have fallen, the injury from the iron cramps at these places does not

seem likely to extend. Very careful attention should be paid to the north-east angle. The perspective sketch, which is an enlargement of one I made in 1846, appears to show it exactly as it remains at present, and it really seems a marvel that it survived the shake of the earthquake of 1894. The other diagrams will show a curious piece of construction of these parts: how a rather shallow trough has been formed on the top of the great angle-stone of the cornice parallel to the fronts, to the end of which trough a piece of stone about 30 inches long, and

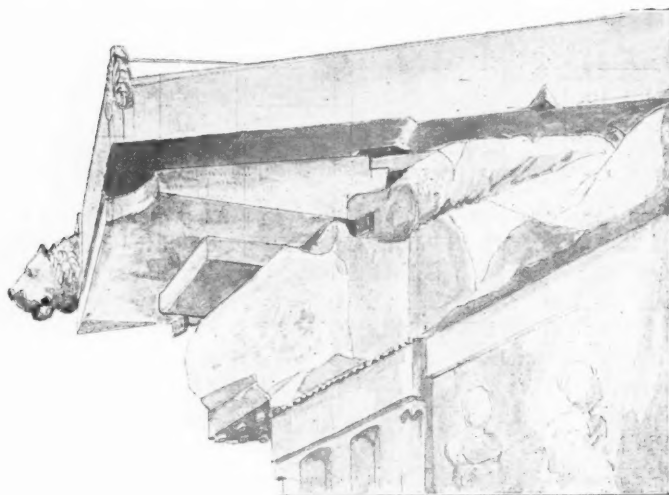


FIG. 4.—NORTH-EAST ANGLE.

measuring in section no more than about 18 inches by 5 inches in depth, seems to have been thrust in after the pediment was fixed. The object of this construction is extremely difficult to explain. From the first I thought it seemed to denote some change of purpose, and my colleague, M. Magne, I find, has come to the same conclusion. However, at the north-east angle it is now performing an apparently useful purpose, for, without its support, it seems as if the lion's head which bears immediately over it could not but fall down. Another diagram [fig. 5] shows the manner in which I have suggested the angles should be secured from slipping any further in the direction above referred to, namely, by connecting the great horizontal corner-stones by means of strong gun-metal cramps with the main cornice at a sufficient distance, so as to provide an adequate amount of weight to resist the tendency. If this great

stone were made immovable, the dowels and such joggling as there is would be available to connect the sloping bed above very firmly with it. The north east angle would require some extra cramping, as the great cornice-stone is itself cracked across. This cramping would be unnecessary at the south-west angle, for the reason given above.

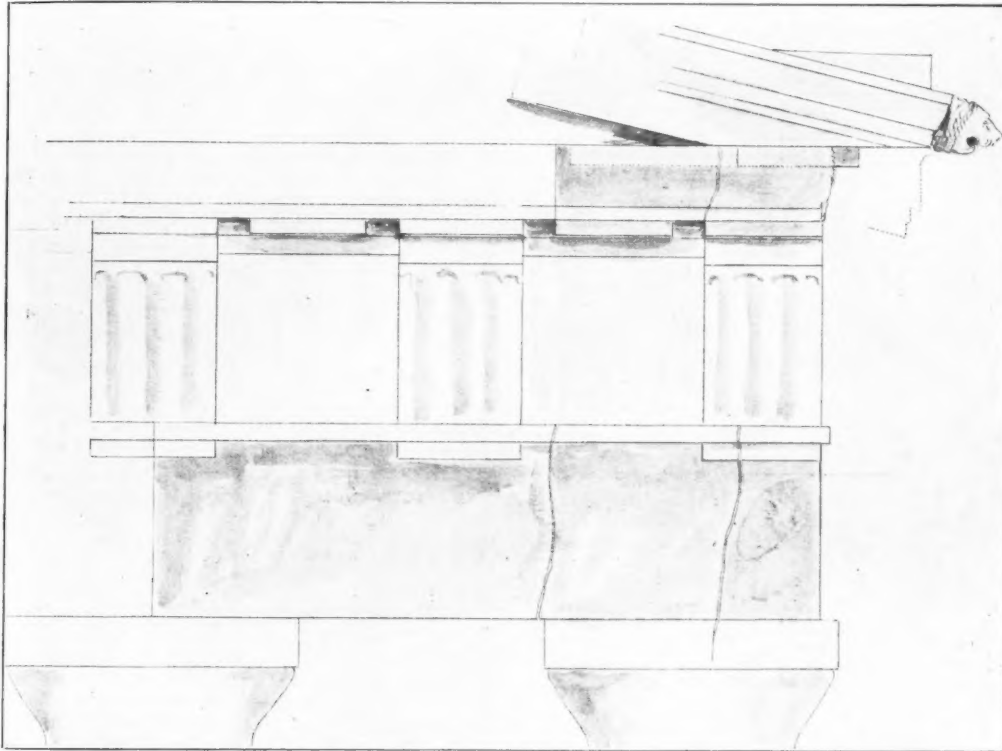


FIG. 5.—NORTH-EAST ANGLE.

Several other points were discussed, and amongst them the pointing of all the open joints at the top of the building, the bringing down of any small loose pieces that there might be, &c.

Very few of the new stones which would have to be introduced would make any difference in the general view of the temple, and scarcely any of the steel- or bronze-work; and the new stone could be stained, as I was able to show by experiment, with copperas, so as to be almost indistinguishable from some of the old time-stained marble.

In conclusion I will quote a few passages from my Report in reference to the question of rebuilding, as far as possible, the fallen fragments:—

“I have heard a rumour that there is some desire to re-erect some of the columns which were thrown down by the explosion. I trust that this is only a vague rumour, and that there is no intention of this being done.

“The unfortunate attempt which was made on the north side in the beginning of the reign of the late king in this direction ought to be a sufficient warning.

“The columns were originally built up with the drums rough-hewn externally, and

finished and fluted afterwards. The great perfection of the joints which was the result is one main source of the great beauty of these columns. The re-erection of the fallen columns with these edges broken, and in many cases requiring to be pieced with new work, can only produce a discord, which is much to be deprecated. I was exceedingly glad to be told that this was not part of the authorised programme."

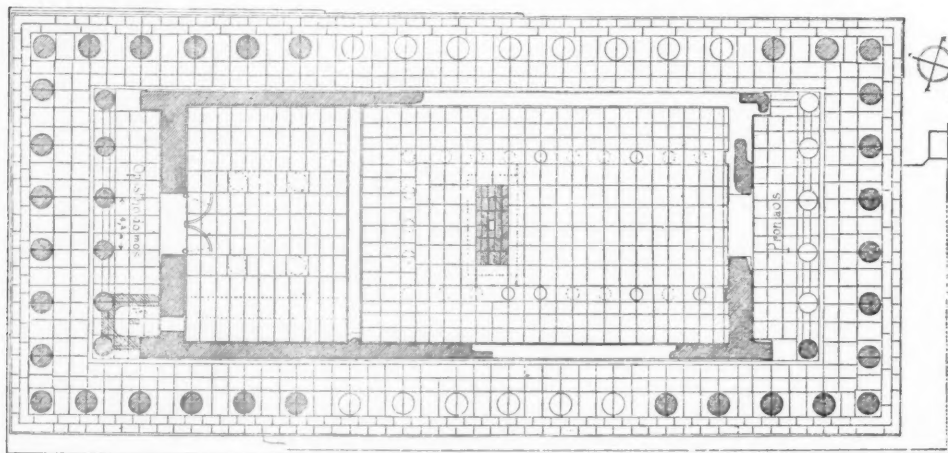


FIG. 6.—PLAN. Reproduced from Professor Dürri's Report.

DISCUSSION OF MR. PENROSE'S PAPER.

The President, Professor AITCHISON, A.R.A., in the Chair.

PROFESSOR ERNEST GARDNER said that he had been in Athens at the time of the 1894 earthquake, and therefore was able to speak from personal observation of its results, and of the appearance of the fragments immediately after they had fallen. After the earthquake the first thing he had done was to go to the Acropolis to see the fragments that had fallen from the architraves of the columns. He could confirm one point which Mr. Penrose mentioned. The damage to these fragments was not done by the earthquake itself. There was hardly any trace of new fractures upon them; in fact, the greater part of the surface within the crack was overgrown even with lichen, and it was considerably discoloured, so that it was obvious that the cracks were old ones, and that the pieces had been just hanging on, until the slightest shock brought them down. There were questions on two or three points which he desired to put to Mr. Penrose. The first was as to the lower part of the minaret, of the great western door and the columns, and the inner lining of the great door. As regards the columns and the possibility of their re-erection, Mr. Penrose had already spoken in a tenor which the speaker was quite sure was in accordance with the general feeling of the Meeting. Nothing could

be more discordant and even hideous than the mangled remains of columns that had been built up again upon the north side of the Parthenon. The reason of it was of course well known to all architects—viz. that it is impossible to place the pieces of a fluted column one above another after they have been fluted. The fluting in the Greek buildings was made after the erection of the columns, and the result of any attempt to build them up again was most disastrous. In comparing those mangled remains of columns built up with those not fallen, one felt how hideous they were. He thought it was impossible to rebuild the whole of the Parthenon. There was not material for it, unless a great many new blocks were cut, which no one would propose; and to cut a few blocks would simply destroy the symmetry of the building. The explosion had produced a kind of symmetry, the columns descending from each end towards the middle, and that was entirely destroyed by the remains of columns built up again. He wished that Mr. Penrose had recommended that those columns set up should be pulled down again; since they disfigured the building with the brick patches that had been put into them. With regard to the great western door, he was very glad to see that there was a proposal to replace

the unsightly brick arch in a much more adequate manner, but he desired to know what Mr. Penrose would propose as regards the sides of that door. The present jambs of the door, on which that brick arch rests, are put inside the original jambs of the door. There are thin casings which were put up most probably when the Parthenon was converted into a church; and it was proposed, some three or four years ago, to remove, if possible, those extra jambs. As regards their removal there was one consideration—namely, that the blocks which had been built in by those who altered the Parthenon into a church had long inscriptions on the back of them which were perfectly illegible, and those inscriptions would be an extremely valuable document from an historical point of view. He would like to hear the opinion of Mr. Penrose as to the advisability or possibility of removing them without damaging the building. As to the lower part of the minaret that still remained, Mr. Penrose said it might possibly be the staircase that belonged to the time of the Christian church, and not necessarily to the Mosque. It afforded a great deal of support to the defective architraves there. The scheme of removing it as a later addition had been discussed some four or five years ago, and he (the speaker) had expressed a very strong opinion, from the historical point of view, as to the undesirability of doing so. After Mr. Penrose's lecture it was clear that its removal was also a serious danger to the building. Summing up, he said that he thought anybody who had looked at the Parthenon carefully must have been extremely alarmed at the cracks all over the building, and at the most inadequate way in which the heavy blocks were supported; but it was most reassuring to be told now by Mr. Penrose that the building might be made safe with such a small amount of restoration and of repair as had been suggested.

Mr. R. PHENE SPIERS [F.], F.S.A., after referring to the President's visit of fifty years ago and to his own of thirty years ago, said that it was impossible to point to any other structure with regard to every five feet of which one could find a fresh view to be taken. Looking carefully at the drawings and photographs exhibited, there seemed to have been little change in the structure. All the stones of the west front, the angle stones, seemed to be very much the same. Slight differences were to be met with near to the north-east angle—that is to say, to the left of the west front. The crack (as shown in one of Mr. Penrose's drawings) seemed to have increased a great deal since his visit, and he found, from the drawings exhibited, that there must be some greater damage done to the abacus of the capitals than what was seen in his own drawings. But apparently the effect of the earthquake was to shake down the loose portions, and very little damage was done to the building itself. Mr. Penrose spoke of certain

stones being laid on the tiles. Did he mean the marble tiles? [Mr. Penrose assented.] Another question he desired to ask was: What was the actual cause of the discolouration of certain parts of the sculpture? To what were those beautiful yellow tones due—to the decomposition of the material of the marble, or to the discolouration from the iron dowels inside? When drawing the east front he had been greatly struck by the still visible traces of the shields there. They were originally gold, and were replaced by bronze shields about the third century A.D.; and although more than 1,500 years had passed, a trace of the shields was still visible. After referring to the general gratification at the President and Mr. Penrose having both been asked to form part of the international committee, Mr. Spiers said that he felt Mr. Penrose's propositions dealt with the building in a sparing way, as far as the restorations were concerned. Iron was very unsightly, and the employment of beams of similar materials to that which formerly existed would be better. It was rather difficult to say now, as one could not judge until the stone was in place; but when it was in place it was of such intense whiteness that it might be worth while to discolour it so that that intense whiteness might be avoided. He begged to be allowed, in conclusion, to propose a very hearty vote of thanks to Mr. Penrose.

Mr. T. J. WILLSON [A.] said that the whole architectural world might be congratulated on the happy result that the accident was not so bad as was thought. Testimony from Athens proved that pieces had come down, but they were not actually split at the time of the earthquake; they were old cracks. He congratulated Mr. Penrose on being the happy bearer of this news, and hoped he would soon find that all the repairs and precautions which he had recommended would be realised. He begged to be allowed to second the vote of thanks.

Mr. JOHN HEBB [F.] said that he had been most agreeably reassured by the statement that Mr. Penrose had made of the methods he had employed for repairing, and not restoring, the Parthenon. There was a vast difference between those two terms. There was no doubt that any attempt to set up the ruined fragments of the columns would result in injury to the building. He was cordially in harmony with the general procedure which had been employed. Nothing could have been better than the ingenious way in which the architrave was raised, and the lintel placed underneath. If any other material than marble could be obtained, he did not know why it should not be employed for the actual repairs. As regards this being a blot which would show that something new had been introduced into the building, he would not be afraid of that. By all means let it appear as a repair, the brick arch which was placed over the western doorway being unquestionably a modern work.

Colouring the marble so as to make it imitate the colour of the old work was extremely risky. Nature would soon colour the marble, or, at any rate, if not soon, Nature had a wonderful habit of taking all buildings to herself, and of colouring them in harmony with the landscape.

Mr. HUGH STANNUS [F.] felt that they were very much indebted to Mr. Penrose for the manner in which he had approached and dealt with this subject. If he (the speaker) might be allowed, he should rush in where angels and elders feared to tread, and venture to submit some suggestions which, if they brought down upon him some obloquy, would, at any rate, provoke some discussion. He should like to submit for consideration the question whether this restoration of the Parthenon might not be carried one or two steps further. Mr. Penrose suggested about the pointing of the cracks and joints, and the ironwork, and protecting them from the disintegration produced by moisture. Many of the walls of Pompeii were protected by tiles. That of course was a very proper thing at Pompeii, because the walls themselves were brick; and there was a certain fitness and sympathy between the tiles and the bricks of the wall. But in the case of the Parthenon the whole of the tops of the walls might be rendered in cement with a slight weathering-slope, so as to throw the rain off. That would protect them for many years to come, and he thought that, taking advantage of that interesting little staircase in the south-western angle of the Opisthodomus, the guardians would be able to arrange for periodical inspection (say annually) of the whole of the tops of the walls—that they need not wait for the earthquakes, which happened at irregular intervals, but that once a year, or oftener it might be, some person should feel it his duty to go round and see that there was no crack of any kind whereby water could get in, or herbage find root to disintegrate the walls. He further submitted for consideration whether they might not also re-erect such other portions of columns as still existed. It was a thousand pities that those lay about, being spoiled themselves, and spoiling the plateau on which the Parthenon stands. It was objected that they were much damaged; but on examining the columns in the Olympeion, near by, it would be seen that those were very much hacked about at the joints, for extracting the iron and lead, as had been the case also at Baalbek. If that argument were held to be worth anything, surely they ought, for a similar reason, to pull down all columns that were mutilated or hacked at the joints. But no one was vandal enough to suppose that they should pull down the columns. In dealing with the Parthenon they ought to think not what an "anti-scrape" would think, but what Ictinus would wish to be done to his building. That was the problem to be dealt with now. It "is a noble ruin"; but they must remember that Ictinus built it with a wall forming the cella, with

a peristyle round that. The materials of more than half the number of columns were still extant; and he would respectfully submit that these might be re-erected so far as the remains allowed. Of course they were damaged at the joints, and they knew that when first built up and the flutes were first cut, then they had microscopic joints; but these broken joints when the columns were built up would be quite in keeping with other broken joints in the other columns and the wall.* He would go one step further: he would submit that the cella wall itself might be built up all round. The hiatus was shown in the photographs and drawings; and still more, one felt profound melancholy in looking at the building itself from the valley of the Ilissos, or from the modern city of Athens. They saw that a building which was intended to be one great whole was now in two pieces. He would like those two pieces to be joined even by a wall of sandstone, so that they might have that solid mass against the sky as it was left in 438 B.C. The cella walls should be connected. It would have two advantages in addition to what he had just spoken of: the making of one grand group on the horizontal line against the sky which would compose so grandly and so nobly with the lines and contour of the Acropolis itself. If it were solid and made of the same thickness as the original wall, they might bring gun-metal stay-rods from the wall to the top of those columns, and thus make them more secure; and this was a constructive reason for the wall. But there was another reason that should have equal weight, and that was an æsthetic one. They must bear in mind that the building as designed by Ictinus was meant to be a *solid* building. Now it was only the bare skeleton of the building. It would be seen that those parts of the building which had a wall behind showed the effect Ictinus desired: that the columns should stand out *light* against the *dark* background. He would ask that the background should be put back again, so that they should have the effect he meant it to have.

Mr. ALEX. PAYNE [F.] said that in his opinion if anybody could restore those columns that had fallen down into the same state as the columns that had never fallen down, then possibly there would not be any objection to putting them up again. But anybody looking at the Parthenon could pick out in a minute those two or three columns on the north side which had been built

* I would desire to add, in reference to what was said by Mr. Payne: I agree that the appearance of the re-erected portions of columns is unsatisfactory. They are probably parts of different columns, put together without proper care, at a time when the *Entasis* was not so well understood as at present; and any re-erection of the other remains should be accompanied by a taking-down and re-adjustment of these. The adjustment would not be difficult with our present appliances for haulage, and greater skill in measurement.—H. S.

up, on account of the bad fitting of the joints; there was a stone and then a slight variation, and then another stone and another slight variation. The whole had a jagged outline, very different from the perfect columns, which appeared as if made of a single stone. The case was different with the columns which had been cut into to get out the metal dowels, but in which the original outline was not disturbed. The restored columns in this case with their jagged outlines certainly destroyed the harmony of the building. If these columns could be set up like the others no one could object. Comparing some photographs taken during a visit to Athens twelve years back with Mr. Penrose's drawings, he desired to ask Mr. Penrose a few questions. Taking the west front in his photograph, part of the top of the capitals of the two right-hand columns was gone. The third column was just like Mr. Penrose's drawing. The fourth column likewise, but (he supposed it was the effect of the earthquake) the central lintel at the time he got that photograph was comparatively perfect except for the cannon-shot. The next two were like the photograph; but as to the last one, the corner of the capital appeared to have gone since the photograph was taken. He desired to mention an additional advantage in the Elgin Marbles being safe in the British Museum, and that is, that not only was the Parthenon subjected to bombardment, but the Turkish soldiers made the figures that remained targets for practice!

Mr. J. M. BRYDON [F.] begged to ask Mr. Penrose how much of the frieze of the cella still remained. It had been incidentally mentioned that part of it was remaining on the western portico, but how much really was complete?—With regard to the frieze, it must have struck many how it was that the Greeks spent so much skill and labour on this magnificent frieze where it was so badly seen; that is to say, it was placed up inside of a wall behind a colonnade, at which one has to look up, at a very acute angle, so as to see it, in a very imperfect light. When Pericles had the Parthenon designed originally, it was designed as a cella wall with a portico at each end, and the frieze was on the external wall; but finding that the public money he used so liberally came in in great quantities, the design was altered, and he made it more magnificent by adding the porticoes all round. A certain support had been given to the theory in that the outer portico was not in alignment with the inner portico, namely, the eight pillars at each end are not quite in line with the six behind. He would like to hear Mr. Penrose's opinion on this German theory.

THE PRESIDENT said that it appeared to him to be a very sad thing that the Greek Government, or some Government that would find the money, had not covered over the portion that was now left uncovered between the outer porticoes and the Posticum, where the portion of the Pan-

athenaic frieze still remained. There is torrential rain occasionally in Greece which, more or less, soaks into the marble. He did not know whether there were frosts in midwinter, but thought it extremely likely, the consequence of which would be that the whole of the surface of this inimitable and priceless sculpture was being gradually destroyed. If the open parts were merely covered with boards, the expense could not be very great. This Panathenaic frieze was seen in reflected light; it is now left open to the sky, and another effect is produced; for the light coming from above cast the shadows downwards, while originally they were cast upwards.

Mr. F. C. PENROSE [F.], F.R.S., in reply, referred first to Professor Gardner's question about the inner lining of the great doorway, and said that he always supposed that it was desirable to maintain as much as possible the historical part of the building, where it did not greatly interfere with the classical; and even then with very great compunction. For instance, although it did not exactly refer to the Parthenon, he regretted exceedingly that the Frankish tower had been taken down, and with the same feelings he would regret that the inner lining of the great doorway, which explains itself perfectly, should be removed; but there should be no difficulty in taking out any pieces of it that might contain valuable inscriptions, and, after rubbing, putting them back again. As to the suggestion of covering over the lintel with marble beams, it is supposed entirely to rest upon the old wall without any help from this inner casing. Very little would be visible of the new stones. Of the front of the Posticum portico there would be not one stone. It would only be visible when one got inside and looked up. Between the Opisthodomus walls and the column no doubt the lintel of the great door would be seen; but from no other point. With regard to the cracks, he had paid a great deal of attention to them during his stay at Athens, and this he was able to do by means of ladders, and he did not find any change at all from cracks which he had measured and very carefully recorded in 1846; the rest he examined by binocular, and could not satisfy himself that there had been any alteration. The cleaning of the shields was very peculiar, because there was a very remarkable difference of colour in the surface covered by the shields; but one might suppose that those shields, especially the bronze ones, may have come down to a very considerable date, and therefore 500 or 600 years of natural discolouration went on outside them and not inside them. In his opinion, that sufficiently accounted for the difference of the stores inside and outside. The discolouration came from the iron which was invisible in the fresh Panathenaic marble, but is present in all marble when brought out by the oxygen and other vapours of the air. The Panathenaic marble was the natural substance to use,

both on account of its local value, and from the fact that it was more easily accessible. The colours of the Pentelican marble would suit the old, when it was a little time-worn, but originally the Panathenaic marble was certainly stained. We have records that staining was used on the marble, and the fresh marble is almost supportably bright in the Attic sunshine. Therefore time has given us an advantage on the building which the ancients never had in that one respect. The covering up of the protection of the iron which he had supposed to be done with cement, and which the committee were anxious to do, was simply pointing with a very quiet and dull cement, on the top of the joints. Referring to the injured capitals, he had no doubt that there were several capitals on the west front in a worse state of repair than was shown in his drawing. Those marked in the drawing were those which he had marked on his sketch for the purpose of considering what was important and what was not. Where a capital was broken off, he did not mark it, as being of no particular consequence; and those that appeared to him to be marks in the construction, he believed he had marked sufficiently. He suggested this explanation of the difference between his drawing and the photograph. With reference to the sculptured frieze, he said that a very small portion remained on the south side over one columniation, a matter of 14 or 15 feet. Then it went as far as the fifth column of the hexastyle portico of the Posticum, and there was broken off. If covering it over with glass could be done efficiently, and without looking modern and weak and poor, it would be a great advantage to the sculptures. He had no doubt that the marble, if protected above, as it is by the overhanging moulding, would bear a great many centuries of disintegration from Attic storms and tempests. The frosts in Attica were not very severe.

* * The illustrations to Mr. Penrose's Paper included, besides the diagrams referred to—the more important of which are reproduced on foregoing pages—some water-colour drawings made by Mr. R. Phené Spiers in 1866, and lent by him for the occasion. These drawings represented the west and east façades of the Parthenon, the north-east angle, the east front from the south-east corner, and the interior. Mr. Spiers also lent a series of photographs taken by Mr. Stillman in 1869: two of the interior (one showing the ruts in the pavement worn by the great bronze doors of the Opisthodomus), a view taken at a high level in the west peristyle showing portions of the Panathenaic frieze still *in situ*; and six photographs, taken by the late Ernest George Spiers, of the west and east fronts, and general views of the interior and south sides.



9, CONDUIT STREET, LONDON, W., 20th May 1897.

CHRONICLE.

Architects and Reinstatement of Buildings after Fire [pp. 174, 239, 328-30].

The following letter, addressed to the Editor of the JOURNAL, has been received from Mr. E. Cozens Smith, General Manager of the Imperial Insurance Company, Limited:—

SIR,—My attention has been drawn to the correspondence and reported discussions on this subject which have appeared in your JOURNAL, and in which the action and views of this Company are so misrepresented that I feel it incumbent on me to furnish you with the following facts. The subject was, as you are aware, originated by the Institute, which, like myself and many others, considered the common practice of providing for the payment of architects' services to clients in the reinstatement of insured buildings by tacking a sum on to the builders' account was detrimental to the character and position of the architect. To remedy this, the Council of the Royal Institute addressed themselves to the Associated Fire Offices, with the result that the Fire Offices pointed out that whilst they were unable to admit or enforce the rights of an associated body, or any of its members, to payment for services arising out of a contract between the Insurance Company and its insured, they recognised the equity and common-sense of the position taken, viz. that the amount payable to a policy-holder for the destruction of or damage to a building, if limited to the actual cost of the builders' materials and labour, was not a full discharge of the insurer's liability, because, ordinarily, no layman could attain a reconstructed or repaired building by the outlay of that amount, unless he employed, and was paid the cost of, an architect whose services were a necessary adjunct; and so far from "the Insurance Offices" having decided or issued circulars intimating "that they would not permit the architects' commission to be paid by the Fire Insurance Offices" they determined and announced the exact contrary. It has been also decided that this equitable liability of insurers to their insured would be admitted, irrespective of a specific insurance of architects'

fees, in addition to the insurance on the building; in fact, the insurance of fees is deprecated as being, not only superfluous, but in a sense prejudicial to the insured as inferentially weakening his rights as above described.—I am, Sir, your obedient servant, E. COZENS SMITH.

The late Charles Alfred Chastel de Boinville [4].

The following memoir of Mr. de Boinville, who was elected Associate in 1882, has been communicated by Mr. Campbell Douglas [F.] (Glasgow):—

When I was asked by the Secretary to contribute an obituary notice of my friend, I felt that I could not refuse to do so, although the doing it recalls many happy memories which are changed to sadness in the present. His antecedents and his life were not like those of the majority of one's friends; but as they are interesting I may be excused for saying a little that is beyond the strictly personal.

He was the representative of a noble family of Lorraine, who took their name from their estate of Boinville. His great-grandfather, Jean Baptiste Chastel de Boinville, became much associated with Lafayette in political matters, and served as aide-de-camp under him. When the Revolution broke out, and the King and Queen were brought from Versailles to Paris, they were escorted by Lafayette, who rode on one side of the carriage, and by De Boinville on the other. Like many other noble unfortunates, Jean Baptiste's estates were confiscated by the Revolutionary Government; but, although he was an aristocrat, he was a reformer, and he lost his life in the Russian Campaign of 1812.

The subject of our sketch was born at Lisieux—where his father was pastor—in March 1850. After some years Mr. de Boinville was removed to Bar-le-Duc in Lorraine, near the old family home, and subsequently to Cherbourg. Charles Alfred entered the office of the late Mr. William H. White, who at that time was in practice as an architect in Paris, and afterwards became Secretary of the Institute. De Boinville remained with him till the war broke out, and was then called to serve his country, writing many balloon-post letters to his anxious family.

It was this Franco-German war which led to the friendship I have just lately lost. My first acquaintance with him was in April 1871, when he came to Glasgow, shortly after the conclusion of the war, having, as an officer of the Garde Mobile, been on the defence of Paris during the protracted siege, suffering much hardship, of which he bore signs in his attenuated person. His bed during that severe winter was generally either a plank or the bare ground. Many were the tales he told of the straits to which the defenders were reduced; his spirit never flagged.

The master roots of his life had grown before I had the happiness of making his acquaintance.

Some of my connections had known his father, and for this reason he came to my house, trusting to get into some good office in Glasgow; but growing interested in some work I was then doing, he entered my office, and stayed in my house for about a year and a half. In this way I came to know him as an architect and to love him as a man.

At that time my friend Mr. MacVean was in the Civil Service of the Japanese Government, being chief surveyor of the Public Works Department, and having charge of the lighthouses. He had a good deal of building work to do, and so it happened that I was employed to buy for this Department and send out a quantity of fittings and building materials. As his building engagements multiplied, Mr. MacVean requested me to send him a good architectural draughtsman, and, if possible, one of quick and skilful resources. I engaged young Charles de Boinville for him, who arrived in Tokio in December 1872, and worked under Mr. MacVean for some time. But in 1874 the Japanese Government detached the Survey Department from the Public Works Department and attached it to the Home Office; and when a head was wanted for the Public Works Building Department, the authorities, having seen the thoroughness of De Boinville's architectural training, selected him, young as he was, for that responsible position. In that service he remained for some eight or nine years, until the Japanese began gradually to dismiss their foreign assistants when they thought they could dispense with their services. Mr. MacVean writes to me "that during De Boinville's life in Japan he designed and had charge of many buildings, but that his two chief works were—(1) the Engineering College of Tokio, including the main building, museum, workshops, dormitories, professors' houses, &c., and (2) the New Imperial Palace; both of which would be considered important works even in this country; that in all he did he gave the greatest satisfaction to the Government; that he never heard any one speak evil of him; and that he was always genial, kindly, and a gentleman."

After his return to England, his short life was still a varied one, full of incident, as it had been from the beginning. After a short term of partnership—of which I need say no more than that it did not realise his expectations—he settled down in H.M. Office of Works in Whitehall Place. Here I know his services were very highly appreciated, and I have not infrequently admired the extraordinary thoroughness of the detail drawings prepared there, which I am afraid is more seldom seen in our private practice. The confidence reposed in him there is evidenced by the repeated visits on which he was sent to the foreign Embassies, such as Brussels, Paris, and Lisbon, where he instituted and carried through important

works. Indeed, it was on account of his much valued services at Whitehall Place—or at least largely a direct result of them—that he was appointed to the honourable position of Surveyor to the India Office by the late Government. These last three years, barely, of his life have been too short, and my knowledge of his work there too limited for me to speak of them; but I know he was much interested in a work which he completed shortly before his death—viz. putting an upper storey of some sixteen apartments over part of the India Office. Carried out during much wet weather, without interrupting any work in the existing rooms—or doing any damage by water—and designed in such a way as to be invisible from any important point of sight, in my opinion, this work showed his native practical resourcefulness. His knowledge on all matters connected with sanitation was great and inventive, and his opinion and advice on such matters were sought by some of the principal makers in London. His scientific and constructive powers, as well as his business capacity, were of a very high order.

His personality was characteristic, uniting the nobility of appearance, the courtesy, refinement, charm, and gracious liveliness of demeanour inherited from his French ancestry, with the generous self-forgetfulness, high probity, and conscientious adherence to duty derived from the maternal side, which was English for three generations. He had gone to Buxton for his Easter holiday, but contracted a chill, which developed pneumonia and internal gout, terminating fatally on Sunday, the 25th April.

The late Arthur Baker [F].

Arthur Baker, who died on the 29th ult. at the age of fifty-five, had been a Fellow of the Institute since 1888. The following particulars of his professional career have been kindly furnished by his partner, Mr. Harold Hughes [A.]:

After spending several years on large engineering works, including the forts on the Portsdown Hills, Mr. Baker entered the office of the late Sir Gilbert Scott as an articled pupil in 1864. In 1865 he won the Institute Silver Medal for a set of drawings of the east end and Ladye Chapel of St. Alban's Abbey. He was admitted a student of the Royal Academy in 1868. On the expiration of his articles, Mr. Baker continued in Sir Gilbert Scott's office as assistant until Sir Gilbert's death in 1878. Setting up for himself, he carried on practice alone till 1891, with the exception of a short period of partnership with Mr. A. W. N. Burder. In 1891 he entered into partnership with Mr. Harold Hughes, and in 1893 with Mr. John Turrill. These partnerships continued up to the time of his death. Mr. Baker was elected an Associate of the Royal Cambrian Academy in 1892, and an Academician in 1894. In April 1895

he was appointed one of the two surveyors for the diocese of London. Among works carried out from Mr. Baker's designs may be mentioned the Churches of St. Paul, Kensington; St. Laurence, Northampton, and St. Padarn, Llanberis; additions to the Churches of St. Cybi, Holyhead, and St. Gabriel, Pimlico; restorations of Hampstead Norreys, Llanrhaidr, Abergelle, and Llansilin Churches; pulpit, screen, and choir fittings of St. Barnabas', Kensington; many parochial buildings and schools; Fishbourne Rectory, Chichester; St. John's Vicarage, Chelsea; and Plas Llanychan, Denbighshire. Mr. Baker served for some years on the Science Standing Committee of the Institute. He was the joint author of a monograph on "Plas Mawr, Conway," and the author of "Model Drainage and Plumbing Specifications," published in the *Building News*.

Additions to the Library.

Many important works have been added to the Library since the last issue of the JOURNAL. Mr. H. L. Florence has presented an ornate folio entitled *Delle Antiche Statue Greche e Romane che nell' Antisala della Libreria di San Marco, e in altri luoghi pubblici di Venezia si trovano*, two parts bound in one volume and each part containing fifty excellent engravings, accompanied by a page of letterpress (Venice, 1740-43). The book is in perfect condition and handsomely bound. Although it is an Italian publication and published in Italy, one observes a number of English names on its list of subscribers.—The Library has also been fortunate in securing a copy of *The Art of William Morris*, a record by Aymer Vallance, and a work whose general decorative appearance suggests the influence of the Morris school. The edition, limited to 220 copies, of which 210 are for sale, contains, besides Mr. Vallance's interesting account and criticism of Morris's art (the author disclaims any purely biographical importance for his work), a portrait of the dead artist, numerous reproductions from designs and fabrics printed in the colours of the originals, examples of the type and ornaments used at the Kelmscott Press, and other illustrations. Mr. Temple Scott contributes in an appendix an excellent bibliography [London: George Bell & Sons].—*Unser lieben Frauen Münster zu Freiburg im Breisgau*, a monograph of one of the finest and one of the most complete examples of Gothic churches in Germany, contains some sixty phototype illustrations of the pyramidal spire, with its exquisite open-work tracery, of the main entrance, richly ornamented with sculptures, of the Mediaeval carved pulpit, of stained glass (dating from the fifteenth century), &c. The work, which contains a few introductory pages of letterpress, has been published under the direction of the Freiburger Münsterbauverein [Freiburg im Breisgau, 1896]; the illustrations are admirably clear, and, as a

rule, worthy of their subject.—Another important acquisition is the *Dessins inédits de Viollet-Le-Duc*, published under the patronage of the Administration des Beaux-Arts by MM. A. de Baudot and Roussel. The publication has been issued in two parts, the first containing 138 plates illustrating 1,400 of Viollet-Le-Duc's drawings, never before published; the second part, *Dessins d'Ensembles*, contains 120 plates.—*Moebel aller Stilarten vom Ausgange des Mittelalters bis zum Ende des 18 Jahrhunderts*, containing fifty plates of examples of furniture selected and edited by Adalbert Roepert and Hans Bösch, the latter contributing a prefatory note, has also been added to the Reference Library.

The *Proceedings* of the Thirtieth Annual Convention of the American Institute of Architects (1896) has been received from the Institute, having as a frontispiece the portrait of the President, Mr. George B. Post. The only papers read before the Convention were "Influence of Steel Construction and of Plate Glass on the Development of Modern Style," by various authors; "National Architecture," by W. M. Aiken; and "Applied Arts and Sciences," by Dr. James B. Cook.—The last quarterly part of *The Architectural Record* contains many interesting and well-illustrated articles, including Part X. of Mr. Barr Ferree's well-informed series on French Cathedrals, "Wooden Houses in Switzerland," by Jean Schopper, "Chippendale Furniture," by A. C. Nye, "A Discovery of Horizontal Curves in Mediæval Italian Architecture," by W. H. Goodyear, &c.—"The Architecture of American Country Homes" is the title of an article, plentifully illustrated, contributed to *The Engineering Magazine* for May.—The *Journal* of the Royal Society of Antiquaries of Ireland (vol. 7, part i.) contains a paper, with twenty-two illustrations, on the "Origins of Prehistoric Ornament in Ireland," by George Coffey.—The Sussex Archaeological Society have forwarded their *Collections* (vol. xl.), containing many useful papers, including a description of the mural paintings at the churches of Clayton and Rotherfield, Sussex, by C. E. Keyser, and an account of the antiquities of Slinfold, by J. Lewis André, &c.

REVIEWS. LIV.

(150)

THE LOTUS COLUMN.

Histoire de l'Ordre Lotiforme: étude d'archéologie égyptienne. Par George Foucart. 80. 291 pp. 76 illustrations, mostly by photograph. Paris: Leroux, 1897.

This work is the most complete and important study that has been published on any single item of Egyptian archæology, and it would be hard to rival it in the literature of classical studies. To the general reader—or we may say to any but

specialists—the prospect of debating the details of one single form of column through 291 large octavo pages is perhaps deterring, as it opens a vision of the demands of archæology, which would leave but little of life for any other pursuit. But when the work is read it will be felt how small a portion could be cut out, and how very few pages could be skipped as superfluous. The lack of such detailed studies in cognate lines makes it all the more needful to be somewhat general, and occasionally discursive, in order to bring in the ideas which are needed. Certainly the whole may be read with profit from every part by any student of architecture, or any scholar wishing to grasp archæological methods of inquiry. After reading it there is no possibility of forgetting or overlooking the story so plainly told by each of the trifling details and variations of the lotus column, which is the most beautiful and characteristic element of Egyptian architecture.

We propose here to give an analysis of the principal ideas, and at the same time to add a few considerations which we only regret that the author has not seen fit to treat more fully himself. It is an inevitable feature, however, of any work which covers a wide field of material for the first time, that no one student can hope for finality at the first essay. The more complete a new work is, the more points it raises on which other workers may have further observations.

The whole work is divided into (1) the origin of the lotus column, (2) the history of its successive forms, from the fifth dynasty down to the Roman Age, nearly 4,000 years. The evidence for the earliest architectural forms is stated from the architectural figures in the hieroglyphs, which show what was done as early as the beginning of writing, and from the illustrations of buildings on the sculptured monumental scenes. A very important disentangling of the conventional combinations of two or more points of view of a building is one of the most original researches in the volume. It explains the combined cornices, and the monstrous forms of columns which are figured on monuments, and which are shown to be formed of two or three separate capitals belonging to different cornices, all superposed in one view. The existence of such monstrous and hybrid forms, many of which would be impossible except in metal, is here clearly explained away, and we may hope that Egyptians will never again be accused of such bad taste. (Pp. 26-33, 67-68.)

In this section we would note (p. 15) that the fluted column shown at Medum is not merely indicated by colour, but is actually fluted in relief in the hieroglyphic sign; and (p. 16) the signs at Medum show that they are near the origin of sign writing, as the changes within a century or two later deviate rapidly from the earlier and more realistic types found at the beginning of the fourth dynasty.

The next chapter deals with the character of

the shaft, base, tenon,* and architrave. In this a footnote (p. 37) just touches on a great question, which we much regret that the author has not fully developed. He insists, and rightly, on the stone forms being derived from wood; but he falters, and scarcely dares to carry back the wood forms to the real starting-point in mud and reeds. The evidences for this are so obvious when stated that they can scarcely be forgotten or overlooked. The typical form is a group of four or six colonnettes, which are banded with colour in early instances, and which are shown as composed of separate reeds in the naturalistic work at Tell el Amarna. The banding is evidence of the binding round of each of the minor bundles, which compose the column. Such a form of column would be far stiffer than a single thick bundle, because each small bundle could be bound tighter, and also the section shows the stiffness of a ribbed structure of four lobes, which is stiffer than a single mass, just as a flange girder is stiffer than the same material in a solid bar. Besides the evidence of the banding and the reed markings, there is the decoration of the top with lotus flowers. M. Foucart falls back on the festal decorations of wood columns to explain the source of this (p. 62); but if a bundle of reeds be gathered in the marsh, what more natural than to tear up a few of the flowers growing among them, and to bind them in at the head of the bundle? When in addition to this evidence of structure and of decoration, we see bundles of reeds plastered with mud habitually used as columns in Egypt at present to carry heavy weights, and see how many other features of the architecture show the use of reeds or stems and mud, it seems impossible not to see the reed and mud origin of the lotus-topped column. The evidences trouble M. Foucart, though he does not place them together; the flower decoration is explained as festal (p. 62), the bundle of colonnettes is assumed to have been derived from a single column (p. 72), the flowers are remarked as never being found on pillars (p. 79), omitting to notice their natural connection with reed-bundles; the banding is ascribed to provincial blunders (p. 131), and the naturalistic bundles of reeds elaborately carved at Tell el Amarna are set down to a mere freak to avoid the deep recesses between the colonnettes (p. 233). All of these points are at once explained by reverting to the mud-and-reed origin of the multiple column.

In considering the origin of the abacus, M. Foucart feels a difficulty apparently in finding any sufficient cause (pp. 46, 47). Various trifling reasons are suggested; but when we once grasp the origin of the column in bundles of reeds, the need of a solid top on the bundle is obvious, to prevent the

architraves dragging and crushing the reeds by uneven pressure; and the abacus continued to serve a useful function in wood and stone pillars, as flexure of the architrave does not thus risk bringing the pressure on the edge of the pillar, and causing flaking and vertical splits.

The origin of the gorge is readily taken back to a free top of loose palm branches (p. 51); but the source of the curvature is referred to the pressure of the roof above (p. 54). This, however, is contradicted by the long-continued convention that the roof is on the level of the torus at the base of the gorge, and the curvature of the gorge stands free and disconnected behind as in front. This points the rather to the curve imitating the free droop of the ends of palm branches above the point where they were tied together and attached to the roof. Such a free-drooping top is to be seen commonly above the palmstick-and-mud walls in Egypt at present.

The origin of the torus in a bundle of reeds bound together is of course recognised (p. 52). It is stated that its function along the edges of a building is to protect the friable crude bricks. But here, again, a view of the reed-and-mud origin of forms explains the function of the torus better. No brick building would be the better for a bundle of reeds, as such would be knocked off the angles by less forces than would injure the bricks. It would be, however, valuable to prevent the crushing of the tender edges of reed-and-mud cabins. Such cabins are constantly made all over Egypt at present as temporary dwellings.

The next chapter is a study of the lotus capital. The theories of its origin are stated; but, as we have noted, the festal source seems superseded by the natural binding in of water flowers along with reeds. From actual flowers a wooden copy was carved, and later translated into stone. The æsthetic objections to a flower capital are noticed, and the disappearance of most of them when it is recognised that the flowers are only a surface decoration and not structural. The parallel of the Corinthian capital might well have been quoted as a classical example of light vegetation round a solid support. The objections made to the height of the abacus are noted (p. 71), and the fact that the high abacus is only used with the widespread campaniform capital, in order to emphasise the purely decorative character of that wide mass (independent of the actual bearing area), by keeping it clear of the architrave. But a very important consideration is omitted. In Greek columns which were used externally the true elevation is seen, and the drawn elevation is a fair test of appearance. But the Egyptian campaniform capitals are used always inside a building, where the form is greatly foreshortened to the spectator below. Hence the drawn elevation by which critics judge the form is an appearance never seen in reality.

* The Egyptian columns of wood had square tenons in the top to secure the abacus and architrave: similar dowels of copper existed in the granite pillars of the earliest temples.—W. M. F. P.

A very high abacus, or die, on the capital, is needed to keep the architrave obviously clear of it in appearance; and this separation is a necessity where the capital is purely decorative, and far wider than the architrave.

A slight mention is made of the campaniform shafts having three slight ribs (*nercures*), and it is suggested that they may have been formed of colonnettes originally (pp. 73, 74). But these three ribs or ridges point clearly to the three ridges or edges of the papyrus stem; these naturally belong to the campaniform top, which is the loose head of papyrus geometrically treated. Handles of mirrors have the three-edged form freely developed, with a papyrus top.

The next chapter contains an excellent discussion of the papyrus and lotus, pointing out the use of both the blue and the white lotus on monuments. It is the best summary of the facts as to the representations of these plants in architectural decoration by the Egyptians.

The second and longer part of the work deals with the historical changes of the conventional type. The starting-point is the exquisitely graceful lotus capital of the fifth dynasty (*circa* 3,600 B.C.) from Abusir. It is cruel to begin with this, as not a single later variation will bear comparison with it; everything else seems clumsy and meaningless by its side. An important point seems to be not yet published, namely, that the six colonnettes of its stem are not equal. The section is hardly elliptical, as described, but rather two wide and flattened colonnettes back to back are each flanked by two smaller and round colonnettes. An admirable photograph of this lotus capital, on a large scale, is well reproduced on p. 104. That this is probably far from the earliest adoption of the type is fully recognised (p. 110). The comparison with a capital drawn in a monumental scene of the same age is full of interest (p. 112).

A general estimate of the character of the early temples (pp. 117-122) is an excursus which is well worth reading.

The well-known columns at Beni Hasan are next studied, and compared with others of the twelfth dynasty at Bubastis, the Labyrinth, and Tanis; while the attribution of these to the twelfth dynasty is reinforced by showing that the palm column (which is often supposed to be late) was in its finest treatment at that same age at El Bersheh and Almas. We might also quote, as instances of the palm column in the twelfth dynasty, the piece of a wooden capital from a house at Kahun, and the exquisite ivory carving of an ape seated on a palm capital from the same place.

The origin of the so-called ties of the bands around the column, produced by the degradation of the early type of lotus buds added between the flowers, is well shown in a series of nine examples on p. 145, ranging from the fourth dynasty to the Roman age.

Reference is then made to the stray lotus columns from Alexandria (in Vienna) which, from their work, show that they belong to the same age.

The painted figures of columns on the monuments of the twelfth dynasty are also noted; and a summary of our information about the twelfth to thirteenth dynasty temples is well put together (pp. 170-181).

The eighteenth dynasty is next studied. There is one object in the monumental blank between the fourteenth to the eighteenth dynasty, of which it is usually said—as by M. Foucart—that no record of construction exists (p. 182): for the stele of King Rahotep from Koptos records his reconstruction there, almost certainly in this period. The resemblance of the lotus columns of Thothmes III. to those of the twelfth dynasty at Hawara is noted; another instance of the descent of art from the twelfth to the eighteenth dynasty. On leaving the twelfth dynasty, the fine monolith columns of red granite disappear, and sandstone built in drums takes their place (pp. 190, 191). The radical effect of this change on the architecture is hardly noticed enough. So long as granite was used, the thickness of the shaft was only requisite for lateral strains, the crushing strength being much in excess of the weight carried. But when a soft material was used, stouter shafts were soon found to be needed, and the sectional area became the important element. When still worse construction was employed, as in the badly built columns of the great hall of Karnak, the sectional area required to carry the great architraves became so great, that no further increase of size was possible. Thus the style reached its limits, owing to bad material. If we imagine what the great hall of Karnak would have been, had it owed its design to the twelfth dynasty, when slender granite columns would have been used instead of rotten sandstone piles, we see that, instead of appearing as the labour of Titans, it would have seemed to be the creation of the gods.

The immediate effect of using a very friable sandstone was that all surface finish was entrusted to a coloured coat of stucco, and hence the real aspect of the columns is now wholly lost (p. 192). Under Amenhotep III. further degradation is seen in the encumbering of the surface of the capital, as well as the abacus, with inscriptions; the form also loses all the remaining grace of the early times, and approaches its decadence. And next, under Amenhotep IV., the whole face of the column is frittered away in surface decoration. The restoration of the capital of the column of colonnettes of reeds, which I gave in *Tell el Amarna*, pl. vii., does not rest solely on fragments of a larger capital found in a different position, as M. Foucart supposes (p. 232), but on the lower part of the capital being found actually with the shaft, and fragments of a similar shaft (on a

larger scale) being found along with the pieces of the larger capital, which supplied the completion of the top of it (see *Tell el Amarna*, pp. 9, 10). The capital also being in four lobes appears as if it belonged to a shaft of colonnettes, and not to the circular shaft of the usual campaniform capital.

The transition from a lobed to a heavy circular shaft and capital for the lotus column is shown to have taken place in the temple of Sety I.—a change which shows the ignorance and want of taste of the times. And this bald and clumsy form was further degraded in outline in the shameless shoddy columns of the great hall of Karnak.

Of the twenty-second and twenty-sixth dynasty works nothing is known. This is doubtless from their being mainly in the delta. Limestone was the material, and this has been hungrily gleaned for lime-burning by every later generation. Hence the monumental blank that occurs in an age so flourishing, and in which such grand works were carried on. Later still, of the Ptolemaic age, the temple of Eshmuneyn showed a bold and debased type; but the sugar factory has made an end of all that.

The Ptolemaic style, which showed an increased vitality, started at least as early as the thirtieth dynasty (p. 281); and it is suggested that such a fresh start implies an age of power and action, which points the rather to its having begun under the twenty-sixth dynasty. A plea is put in for the despised Ptolemaic work (p. 283). It is said that neither in material nor work is it inferior to the Ramesside. But surely to make such a comparison is alone a sufficient condemnation of it. The real fault of the Ptolemaic work is a pettiness and overloading of detail, which is misplaced and misunderstood, and a lack of structural power in the decoration, which becomes a mere surface ornament, and ceases to be an organic growth. The Ptolemaic temples are to the earlier ones, that have now perished, much what a mummy is to a man: the form is all there, inexpressively preserved, but the life has vanished for ever.

We have now briefly summarised this work, which is a refreshing promise of what we may yet hope to see from French students, and is a grateful contrast to the piles of showy volumes, full of errors of transcription and of drawing, which have rapidly loaded the shelves of Egyptology in recent years.

W. M. FLINDERS PETRIE.

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LORD LEIGHTON'S ROYAL ACADEMY ADDRESSES.

Addresses delivered to the Students of the Royal Academy by the late Lord Leighton. 80. Lond. 1896. Price 7s. 6d. [Kegan Paul, Trench, Trübner & Co., Limited, Paternoster House, Charing Cross Road.]

A lecturer who gathers his audience together but once every other year, and has to make use

of that rare occasion for putting the semblance of a ring round a subject so boundless as that of the Fine Arts, is forced by the necessities of the case to throw detail to the winds and to deal with the broadest generalisations. When the marshalling of facts has thus to be postponed to the theories which spring from them, the temptation is to take the inferences ready-made, and to rear a top-heavy structure on a foundation the security of which has never been ascertained. Lord Leighton took so conscientious a view of the duties of the President of the Royal Academy to its students that such a proceeding would have been impossible for him, even if the artist in him had been content to treat his mistress with so cavalier and superficial a courtesy. As a matter of fact, his summer holiday for years was devoted to the collection of material for the winter address.

The man without whom no London function was complete, who had learnt in a marvellous way to double the man of society—one might almost say, the man of fashion—with the student, the worker, and the craftsman, the claims of social life once satisfied, hurried away to find relaxation in change of scene, interest, and occupation, and to repair in solitude and by observation the inroads made by the effort of sustained original work under the exhausting conditions of town life. Thus even when, as in the Addresses more particularly concerned with architecture, the general theories are frankly taken *en bloc* from the works of specialists, while they are elucidated for us by a narrative, concise and yet perfectly readable, the facts which these theories presuppose have not equally been taken for granted, but have been, generally speaking, verified, besides being supported and illustrated by fresh instances of parallelism or contrast.

Each lecture is a more or less carefully rounded and complete composition in itself; but the whole forms a series—a truncated series, alas!—with a substantial thread of connection binding them all together. This is a far more interesting arrangement than the mere bundle of sticks, and justified, if justification were wanted for the assumption that the audience would have some knowledge of at least the previous lecture, by the presence among the ever-changing ranks of recruits of the solid leaven of veterans—the members of the Royal Academy itself—for these Presidential Addresses, though professedly delivered to the students alone, really belong in part to a larger world, and have come to be modified in a degree owing to the recognition of that fact.

One may, perhaps, allow oneself the expression of a regret that phrases natural enough in a spoken address should not have been pruned out in editing for publication. We do not need to be told that in actual delivery the whole thing was a race against time; but while the best-

intentioned audiences are not proof against yawning fits, and lecturers hasten to disarm criticism and to stimulate flagging attention by constantly holding out hopes of the end, any such appeals in print are patently mistaken. It is as though a Lord Chesterfield should "rush" the end of every letter, and conclude "In haste to catch the Post"—most irritating, unconvincing, and unliterary of all formulas. Apart from this fault—which, after all, is not the writer's—the lectures have all their author's most characteristic literary qualities, great intelligence and power of clear and logical arrangement, with frequent bright informing phrases and flashes of witty presentment, which make the obscure as bright as day. But with this, there is the redundancy of diction, the love of fine writing for its own sake, the too uniform richness of word-painting, which make continuous reading the least bit tiresome. We seem to pass from one hot-house to another, without ever getting to the more homely flower-borders and the fresh air of heaven.

For the matter, it is not for a reviewer to abridge a narrative, even if it were possible further to compress what is already a "multum in parvo," but it may be said that the view here expressed of the function of Art is as high as one would naturally have looked for; and the duty of the artist to himself, if he intends to be a fit minister in her service, is put with refreshing candour.

The effects of climate, temperament, and conditions on a national art are everywhere clearly and even convincingly traced; nowhere more so than in the contrast instituted between German art under the Hohenstaufens and under the dominant influence of burgherdom. But it is idle to particularise; and this instance, if more striking, is possibly less subtle than others which might be mentioned.

These lectures are, of course, not printed now for the first time; but as the least the Academy could do was to render permanent, as they were delivered, monuments of industry, learning, and wit, which reflected honour on the whole body, so there can be no manner of doubt that the general public has rightly been accorded the opportunity of judging as a whole what it was given to only a very small number even to make acquaintance with piecemeal, and from year to year.

A. E. STREET.

(152)

SALISBURY CATHEDRAL.

Salisbury: the Cathedral and City. Bell's Cathedral Series. Edited by Gleeson White. Sm. 8s. Lond. 1896. Price 1s. 6d. [George Bell & Sons, York Street, Covent Garden.]

If, as some say, this is the age of handbooks, it seems a hopeful sign of the increasingly intelligent interest taken by the general public in things architectural, that such as the one under review should be designed to meet the demand. It

should be possible to produce concise descriptions of our national monuments that will prove useful to the student; and, while not avoiding the technical, will also appeal to "the man in the street." Ignorance of ordinary architectural terms is too common to need emphasising, even many of our popular authors disdaining ordinary care in this respect.

Mr. Gleeson White is to be congratulated on the manner in which he has accomplished his by no means easy task. He gives a mass of information in a clear, concise, and intelligent form, and, without being too technical, is sufficiently so to be instructive. Unfortunately, he has not quite emancipated himself from errors of description incidental to guide-books. For instance, what he terms the "towers" flanking the west front can hardly be said to terminate in "spire-crowned pinnacles."

As the author says in his preface, he is fortunate in this case in being able to deal mostly with established facts. Commencing with a history of the Cathedral, a short description is given of its removal from Old Sarum. The contention that the latter site was abandoned on the plea of scarcity of water is hardly borne out by facts, for, as is pointed out later on, there were frequent conflicts between the Church and State authorities while the Cathedral was within the King's Castle. The bull of Honorius II., which is quoted, mentions no such reason as the first, and surely if there was enough water for garrison purposes there was sufficient for the Cathedral authorities.

It is rather unfair to name the somewhat scandalous motives attributed to Bishop Richard Poore for desiring to fix on Wilton as the new site. The character of Poore seems to point to far different reasons. The fact is overlooked that in 1075 the Council of London directed the removal of cathedrals from small towns and villages to larger towns and cities. As is stated, Wilton was a place of some importance, and is it not likely that Poore had this in mind? But, failing Wilton, the choice of such a wet site as the Myr-field, or Maer-field, certainly seems a curious one. In discussing this point, the author mentions the usual comparison with Venice; but he forgets that the main streets of Salisbury until quite recently had watercourses running alongside them, and one street is still called "The Canal." It is a too common failing to credit our forefathers with anything but common-sense. It appears that Poore was compelled to find a new site on his own land. Now we find that the Church of Sarum was endowed to a great extent with the old estates belonging to the bishoprics of Sherborne and Ramsbury. Many of these lay in Dorset or Berks; and if Poore wished to establish his new church near Old Sarum and Wilton, he may have been restricted to that part of his estates lying between the possessions of the Abbeys

of Wilton and Amesbury. The Rev. W. H. Jones tells us that the possessions of Wilton nearly equalled those of Malmesbury, viz. 50,000 acres. However, the choice of such a site, whether enforced or not, gave an opportunity for some ingenious construction, as the continuous base for the piers shows. It may be noted that the cost of the new Cathedral is given as 40,000 marks. The Rev. W. H. Jones names the sum as 42,000.

The idea that Elias de Dereham was the architect is favoured by the author. It may be interesting to add that work identical with that at Salisbury may be found at Bishops Cannings in Wiltshire, the manor of which belonged to the Bishops of Salisbury. The author omits to state that Bishop Poore built the Palace, and that the crypt has been re-opened by the present Bishop.

In dealing with the various "restorations," mention is omitted of that done under Bishop John Hume in 1777, evidently in a secularising spirit, and as we are told that the choir was lengthened 20 feet, it seems probable that the altar was then removed, and not during the Perpendicular epoch, as is conjectured by Mr. Gleeson White. Wyatt is let off somewhat easily, and that he was not wholly responsible for the sweeping havoc he wrought is evident from the Chapter instructions quoted. If he had limited himself to these the results would have been unhappy enough, but unfortunately his passion for "vistas" resulted in far worse destruction. His most ardent apologists could hardly excuse the removal of the Bell Tower, which is well shown in a reproduction of an old engraving.

In describing the exterior of the fabric, mention is made of the tower being built on woolpacks. It may be of interest to add that an identical superposition (if it is one) attaches to the fine Early English detached belfry at West Walton, Norfolk, though the author seems unaware of this. This tower was erected on a wet site also. It has been suggested that, so far from any symbolical meaning being intended, the idea was merely to soak up water in the trenches. Mr. Gleeson White does not fail to note the daring feat in the erection of the tower and spire, though the present works to the former are a sad comment on his confidence in its future stability.

Many people will hardly agree with the author's strictures on the west front, and in condemning the central lancets he has overlooked their appearance from the interior.

In the description of the interior, mention is made of the twelve altars and their dedication. It might have been pointed out how these were probably allotted to the east wall space afforded by the transepts, for, excluding the High altar and Lady Chapel altar, we have one to each of the three bays of the nave transepts and each of the two bays of the choir transepts; and here we seem to have a motive for the plan.

In dealing with the monuments the author cannot resist a rather lengthy discussion on the question of the famous "boy Bishop," though he does not throw any fresh light on the subject. However, he gives some very interesting facts about the ancient custom.

The Cloisters and Chapter House are included under the head of "Interior," as are also the demolished Beauchamp and Hungerford Chapels, about which some valuable information is given, together with a view from an old print of the latter—a view which makes one bitterly regret the action of the authorities in permitting such vandalism as its demolition. But it is hard to say why the author includes "The Close" and "Bell Tower" in the "Interior," especially as he returns to the subject of the first at the end of his book. It might, too, have been less summarily dismissed, the remarks being rather sentimental than useful in one place, such items of interest as the complete shaft of a Mediaeval "sack lift" in one of the canons' houses being unmentioned.

It may be well to add to the comments on the stained glass, that Dr. Simpson mentions that in 1620 there were "three great windows newly glazed, in rich colours, with the story of St. Paul." The window inserted in 1890 is by Henry Holiday, not Halliday, as stated.

The book concludes with a short history of the See and Diocese of Sarum, with a biographical list of the bishops. A mistake occurs in the account of Richard Poore. He was connected with Tarrant Crawford, not Monkton, in Dorset.

The numerous photographic illustrations are good, but it is a great pity that recourse has been had to Carter's book for many of the geometrical drawings. They are not particularly well drawn, nor are they accurate. Surely better examples were available. It is also to be regretted that a better plan was not provided, for it is sketchy and meagre in the extreme. The removed porches might have been indicated in addition to the Chapels.

A word should be said in praise of the cover, although the rather Celtic form of ornamentation has no parallel in the work under consideration. Despite its drawbacks, the book is a valuable one, ably written, and it should form a useful addition to the literature on the Cathedral.

A. NEEDHAM WILSON.

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FARADAY ON RATING.

Rating: Principles, Practice, Procedure. By P. Michael Faraday (Rating Surveyor). The legal matter revised by Stanley A. Latham, LL.B. (of the Parliamentary Bar, Associate of the Institute of Chartered Accountants, &c.). 8s. Lond. 1896. 536 pages. Price 12s. 6d. ["*Estates Gazette*" Offices, 6, St. Bride Street, E.C.; Sweet & Maxwell, 3, Chancery Lane, W.C.]

"Of making many books there is no end." The ordinary reader is apt to compare the reviewer, "so savage and Tartarly," to that energetic insect

the wasp, which is popularly supposed to attack every one with a fine impartiality. The author appears to share this opinion, and in his Preface thus justifies his work against any who shall gird at him:—"Notwithstanding the number of important standard works already extant on the subject of parochial rating, I venture to think, on placing this book before the public, that it will fulfil a want, at least as regards the practice of making valuations from a surveyor's point of view."

"The surveyor's point of view" in this book is not conspicuous, and neither from the surveyor's point of view nor the lawyer's point of view is it clear why it was written. An author who attempts to elucidate the principles of rating, or to describe its practice, must of necessity deal with hackneyed precedents and long-established principles. The only plea for a new book must be the poor quality of the existing ones on the subject. Certainly the books of Penfold, Castle, Boyle and Davies, and others may not be thus described.

The principles of rating are now so complex and of such far-reaching scope that they cannot be compressed into such compass as this book presents. Moreover, an incomplete book on rating is dangerous because misleading, and is very much worse than useless. Many of the published handbooks or text-books (so called) on technical subjects are of this quality: they are the derision of the experts.

The book is divided into two main sections—principles and practice. The principles have been more thoroughly dealt with before, and there is nothing strikingly original in the details of practice.

The quotation of legal decisions at length (a characteristic feature of the book) cannot be commended, and although it may occasionally happen that the professional man cannot feel quite safe without reading the complete report, yet as a rule he is better pleased with a digest which states in concise language the inferences to be drawn from a judgment. Nothing of that kind yet produced is so thorough as the digest of cases attached to Boyle and Davies' *Principles of Rating*; this is, of course, founded on *Fisher's Digest*, but has been brought well up to date.

There is a table of cases, but it cannot be called complete. The reference to turnpike tolls in the chapter on exemptions is obsolete. Turnpike trusts do not exist in England. It is a question in the minds of many rating surveyors whether any exemptions are reasonable or politic.

The appendix contains extracts from the principal Acts of Parliament relating to parochial assessment, but neither are these complete. The very useful distinction adopted by some of the existing books on rating, of printing in italics such parts of the old Acts as are repealed by the Valuation (Metropolis) Act 1869, would have increased the convenience of reference.

There is, however, some originality in the chapter on the valuation of buildings. There is also a good index, and this, with the marginal summaries, are valuable aids to reference.

The whole of the New Agricultural Rates Act 1896 is printed in the appendix, and is followed by the "Copy of Order of the Local Government Board making regulations for the purposes of the Agricultural Rates Act 1896." This document embodies no fewer than twenty-one forms of notice, valuations, &c. These will probably make clearer the process of procedure, the directions for which in the Act are obscure. Whether the absurdly small relief which the Act affords to a most worthy class of men was worth the obloquy which it provoked is a matter of opinion. It is certain that even the twenty-one forms will not completely elucidate this Act, and much ministration of surveyors and plentiful legal appeals may be confidently anticipated.

JOHN LEANING, F.S.I.

LEGAL.

THE LONDON BUILDING ACT.

Dangerous Structure Notice—Width of New Street.

Two decisions of Mr. Justice Hawkins and Mr. Justice Wright on the London Building Act 1894, both of considerable importance on its construction, are reported and commented upon in the *Law Journal* as follows:—

The London County Council v. Bernstein, decided on 11th May, turned on the construction of section 107 of the Act as to dangerous structures. A dangerous structure notice under section 106 was served on an owner of premises who, under section 107, required arbitration, and appointed a surveyor under section 107, subsection 2. This surveyor and the district surveyor appointed an arbitrator under that subsection, but did not together view the dangerous structure nor report thereon within seven days. The Council then took proceedings for non-compliance with the notice, considering that in default of a conjoint report within section 107, subsection 2, within seven days the arbitration lapsed; in other words, that the provision for report within that time was mandatory, and not directory, and that the making of a report within the prescribed time was a condition precedent to the jurisdiction of the arbitrator. This view was contested by the owner of the premises, and the magistrate did not adjourn the summons to await the result of the arbitration, but dismissed it on his reading of section 107. On a special case the judges, by a curious, if beneficial, mode of reasoning, read section 107, subsection 2, as meaning that though the two surveyors must jointly report within seven days, if they failed to do so the arbitrator could then act; and they also held that the Arbitration Act 1889 applied to the proceedings of the arbitrator, and the time for his award could be extended by the Court. But the Court seem to have thought that if any default were made within the seven days in appointing a surveyor or concurring as to an arbitrator the owner of the structure would lose his right to have arbitration.

The other case—*Regina v. London County Council*—decided on 10th May, turned on section 13 of the Act with reference to the width of new streets. Land in Deptford unbuilt on was bounded by a fence which became dilapidated. The owner then, under section 13,

subsection 5, obtained what purported to be a certificate as to the position of the old fence, which for this purpose seems to have been treated by the district surveyor as a structure, and built in its stead a brick wall. He then built stables behind it, with the result that the brick wall, which thus became the external boundary of the forecourt of the stables, was within the prescribed distance from the centre of the adjacent street. No consent was got from the Council. They prosecuted the builder, under section 200, for breach of the provisions of sections 13 and 14, and he was convicted, subject to his right to a special case as to whether the old fence was a structure within section 13. The wall was not removed, and the builder was then prosecuted for continuing penalties; but this summons was dismissed because he had gone out of possession. The owner, Mrs. Webster, was then prosecuted (see section 152) for continuing penalties. She then applied for a consent to the erection of the fence within the prescribed premises, but the Council refused to entertain or consider the application. An appeal was also taken to the Tribunal, but dismissed on the ground that there was no determination to appeal from; and on the hearing before the magistrate the point was raised that she was entitled to a determination by the County Council, subject to review by the Building Tribunal of Appeal, whether it would or would not consent to the wall being retained in its then position under section 13, subsection 4; and the magistrate seems to have adjourned the case to let the owner apply for a *mandamus*. Examination of section 13 inevitably showed that the consent must *precede* the erection of the structure or building, and that the Tribunal of Appeal cannot be called in or the Council be asked to consent under the section where an illegal erection has taken place. The appeal to the Tribunal under section 13, subsection 4, does not seem to apply to refusals to consent to buildings at less than the prescribed distance, but only against neighbours or local authorities who object to consent being given, or persons affected by the conditions with which it is clogged. But the clause is obscure, and it may be that a refusal to consent as well as consent may be made the subject of an appeal if presented at the right time—i.e. before erection of the structure. One thing more the case establishes, that the remedy of the owner or builder is not by *mandamus*, the discretion of the Council being reviewable, if at all, only by the Tribunal of Appeal. Another point was involved, whether the Council could consent *after* the erection. It seems clear that nothing in the section gives any such power; but the Council can always resolve that in a particular case of illegality the technical wrong is one which it would have assented to if consulted in time, and is not one for which a prosecution should be instituted, or can compromise any proceedings taken in respect of such an illegality.

MINUTES. XIV.

At the Fourteenth General Meeting (Ordinary) of the Session, held on Monday, 17th May 1897, at 8 p.m., Professor Aitchison, A.R.A., *President*, in the Chair, the Minutes of the Meeting held 3rd May 1897 [p. 343] were taken as read and signed as correct.

The following candidates for membership, found by the Council to be eligible and qualified according to the Charter and By-laws, and admitted by them to candidature, were recommended for election, namely:—As FELLOWS, Edward Albert Ram (Hong Kong); Stanley Percy Silcock [A.], *Qualified as Associate* 1888 (Warrington); George Eley Halliday (Cardiff); and Francis George Fielder Hooper [A.], *Qualified as Associate* 1882, *Pugin Student* 1882, *Godwin Bursar* 1888. As ASSOCIATES, Edward Albert Jollye [Qualified 1888]; Edward Harding

Payne [Qualified 1896]; Edwin Nicholson [Probationer 1890, *Student* 1892, *Qualified* 1895]; James Saunders [Qualified 1892] (Oldham); Hugh Thomas Porter [Qualified 1896]. As HON. ASSOCIATES, Henry William Brewer; J. Lewis Thomas; Sir James Drogmore Linton, *President* of the Royal Institute of Painters in Water Colours. As HON. CORR. MEMBERS, Jean Jacques Winders (Antwerp); Alexandre Charles Arthur, Comte de Marsy, *Directeur de la Société française d'Archéologie* (Compiègne); Jean Théophile Homolle, *Directeur de l'École française d'Athènes* (Paris).

A Paper by Mr. F. C. Penrose [F.], F.R.S., entitled *THE PARTHENON, AND THE EARTHQUAKE OF 1894*, having been read by the author and discussed, a Vote of Thanks was passed to him by acclamation.

The proceedings then closed, and the Meeting separated at 10 p.m.

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